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TICKS IN THE EARS OF HORSES.

By C. H. Tyler Townsend.

Notwithstanding the recent valuable papers of Dr. Cooper Curtice (in Journ. Comp. Med. and Vet. Arch., July 1891—Jan. 1892, and in Bull, 24 Texas Agric. Exper. Station), and the timely and valuable classificatory paper of Dr. Geo. Marx, (Proc. Ent. Soc. Wash., Vol. II, pp. 232–6) on ticks, I can find no mention of any species ever being found in the ears of mammals. In southern Mexico, and also western Texas, we have a tick which is, at least here, confined to the *ears* of horses and perhaps some other animals. They are never found outside on the body of the animal, but only within the ears and usually deep-seated. They are very abundant also, and the wonder is that there seems to be no record of this habit in a tick, and what is more that the tick itself is not readily determinable.

I am informed that ticks, perhaps not the present species, are found in the ears of horses, and also cattle, in the southern states, and as far north as Pennsylvania. It therefor seems strange that no mention should be made of this habit by writers on ticks. I have also been told of ticks that were found in the ears of dogs in northern Indiana, the tick being a species apparently either of Ixodes, or of Dermacentor.

In March, 1891, in Las Cruces, I took from the ears of a horse of the type commonly called bronco, a good number of ticks of all stages except the larva. These are of all sizes, from the egg (?) and white young ticks to the leaden blue older ones. But they all have eight legs, which indicates that they have all passed the larval stage.

I have spent much time in rather vainly trying to arrive at a conclusion, satisfactory to myself, as to their generic position. After much study of Dr. Marx's classificatory paper above mentioned, I conclude that the chances are most in favor of their belonging to the genus *Argas*, in which case they may perhaps be the species described by Packard as *Argas americana*, of which I have no description. I am not at all sure of this generic conclusion, however, as the figure of *A. reflexus* (the dove tick) in the Standard Natural History shows the body produced anteriorly far over the head, and the palpi nearly twice as long as the rostrum. I therefore give the following description of the important characters of this tick, which is made wholly from the specimens above mentioned as taken in March, 1891, all of them being secured from the ears of the same animal, a small bronco. This animal had, shortly previous to that time, been brought in off the range near the foot of the Organ Mountains.

Description of adult.—Capitulum not apparent, minute, rudimentary, concealed within a circular oval hollow or cavity with raised edges, into which the mouth parts are sunken at base. This oval hollow which contains the capitulum, is situated well below the dorsal surface of the body, and at a considerable distance from the anterior edge of the body. The palpi are not excavated longitudinally on the inside, and are not approximated to the sides of the rostrum, except of course at the base. They are but slightly longer than the rostrum, 4-jointed, sub-cylindrical, a little more than three times as long as wide ; the first three joints are nearly equal, and cylindrical, while the fourth is hardly as long as the third, not as stout, narrowing on apex, and probably not retractile. Rostrum can hardly be called either long or short, being about twice as long as its width at base. Eyes absent. Anterior border of body projected in a rounded angle (not in a beak-like prominence) immediately over the capitular hollow, the palpi and rostrum projecting forward sufficiently to be seen from above. Spiracle showing as a small round conical tubercle on side considerably dorsal of last pair of legs, and just anterior to middle of lateral constriction of body.

The body is coriaceous, leaden gray or bluish in color, with a creamy colored area on ventral surface near base of abdomen, and legs cream colored ; full round, oval in outline from above, about half as thick as wide, and covered with little short spines which give way on posterior half or more to hairs. A little behind the middle the body is constricted at the sides. In alcoholic distended specimens the dorsum has two short longitudinal depressions anterior to lateral constrictions, two posterior to same, and a short one in the middle between the four, or more or less elongated behind, between the posterior two. Legs 6-jointed, not including the very small terminal subjoint ; each leg terminated by a pair of elongate, strongly hooked claws, borne on the subjoint. None of the legs with suckers. The sixth joint of legs bears on outer side before tip, a tubercular projection of the surface with hairs, the joint being suddenly narrowed at this tubercular eminence. This narrowed terminal portion of the sixth joint sometimes appears like an extra joint. Length 8 to 8.75 mm ; greatest anterior width 5 to 6 mm. Three alcoholic specimens. Color noted in life.

Fourth stage.—Differs only in integument being more filled out, lateral constrictions somewhat more pronounced, shape somewhat more elongate, oval excavation without raised edges, dorsal depressions absent, faint, or shallow. Spiracles same. Color nearly same, slightly lighter bluish. Length, 6.25 to 6.75 mm.; greatest anterior width, 4 to 4.25 mm. Three alcoholic specimens. Color noted in life.

Third stage.—Color bluish gray, more oval in shape, not swollen, body narrowed posteriorly, spines of anterior half more closely approximated both on dorsum and on venter, giving the surface a more spinose and prickly appearance ; hairs of posterior body thicker. Mouth parts same, but less sunken, the oval hollow being less apparent, the palpi and rostrum more extended and more plainly seen from above. Three short longitudinal impressed lines on venter posterior to last pair of legs, the two outer lines diverging posteriorly from the median one. Spiracular tubercle hardly more prominent. Length, 3 to 4.5 mm.; greatest anterior width, 2.25 to 3 mm. Five alcoholic specimens. Color noted in life.

Second Stage.—Nearly shape of preceding stage, but smaller, and wholly whitish. While the above stages are all more or less coriaceous, the present one is almost fleshy. Mouth parts same, but not sunken, the capitulum exposed, at least the mouth ring visible, and palpi and rostrum entirely visible from above. Spines of anterior half of body above and below whitish, concolorous with body, posteriorly directed. On ventral surface, anterior to the three longitudal lines and situated between the third pair of legs, is a pair of oblong spots, each marked by an elongate circlet of blackish dots, median posterior line being also defined by similar dots. A pair of exactly similar spots, each marked by a circlet of of dots, on dorsum ; and also a longitudinal median line, marked with dots, almost exactly corresponding to the middle line on venter. Eight legs. Spiracles conical, rather more prominent, posteriorly inclined. Length (including rostrum), 3 mm.; greatest anterior width, 2 mm. Two alcoholic specimens. Color noted in life.

Egg (?).—This is apparently the egg. Whitish, pyriform in shape, slightly flattened, wider anteriorly, rounded posteriorly, perfectly smooth, with a median teat like anterior projection which represents the larval head and mouth parts. Length, 4 mm.; anterior width, 2.33 mm.; posterior width, 1 mm.; width at posterior two-thirds, 2 mm.; thickness, 1.75 mm.; length of head case, nearly 1 mm. One alcoholic specimen. Color noted in life.

Note.—The above stages are simply those represented in the material in hand. They are not necessarily the consecutive stages, representing consecutive moults, though it is quite probable that they are such, and are correctly numbered, omitting the first, or larval stage. The second stage above described is probably the first eight-legged or nymph stage. It may be well to note that immersion in alcohol for two years turned the third, fourth and adult stages to a reddish or dark brown. The second stage preserved its whitish appearance, except that it was turned slightly yellowish.

Horses infested with these ticks are given to repeated shaking of the head at irregular intervals, which sometimes dislodges the ticks. When badly infested, animals have been known to roll as well. The ticks can be extracted with a pair of forceps, the horse usually submitting quietly to the operation, but it is necessary to cast some animals before operating upon them. A mixture of twenty parts of sweet oil to one of laudanum is sometimes poured into the ear as a remedy, which is of doubtful efficacy. The sweet oil alone is probably about as effective. Fish oil would doubtless give good results. Kerosene should never be used, unless in emulsion. Pure, it has been known to cause temporary deafness. Train oil, sometimes called British oil, poured into the ear is quite highly recommended, and will doubtless prove very effective.

Dr. Wm. B. Lyon, of Las Cruces, informs me that he has on several occasions extracted this same tick from the ears of children in this neighborhood. He recommends a little chloroform or carbolic acid in sweet oil, or dusting of calomel into the ear for ticks infesting horses.